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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,487	05/23/2001	Jens Wildhagen	450117-03309	9332

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NEW YORK, NY 10151

EXAMINER

MUNOZ, GUILLERMO

ART UNIT	PAPER NUMBER
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2637

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,487

Applicant(s)

WILDHAGEN, JENS

Examiner

Guillermo Munoz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION***Drawings***

Figure 2a should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it is not limited to a single paragraph. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: The specification is objected to for including references to the claims, for example page 3, lines 27-29 reference independent claim 8. The specification is objected to for including German language in the

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description, for example page 2, line 11. It is suggested an English translation be provided for the German phrase.

The specification is objected to for not including section headings as follows.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kale et al. in view of Bolle .

Regarding claim 1, Kale et al. teach all the claimed limitations of claim 1 “ a structure...at least one multiplier” in claim 1 as follows. The allpass filter of order x is shown in figures 8(a) and 8(b), where x is interpreted to be 1 for figure 8(a) and 2 for figure 8(b) on page 166. The at least one multiplier is shown in figures 8(a) and 8(b). Additionally, the phrase “a sampling rate $f_s' = f_s/N$, with f_s being the sampling rate of the input signal ($t(k)$)” is interpreted to mean the allpass filter operates at a rate equal to f_s/N . Kale et al. fails to teach the allpass filter operating at the rate of f_s/N , however, Kale et al. teach the allpass filter can be used for a plurality of data conversion processes, note page 165, left column, lines 35-38.

Bolle teaches an implementation of a polyphase allpass filter as a complex baseband converter. The polyphase allpass filter is clocked at a frequency $= F/N$, where F is rate at which data is sampled, note Fig. 1, elements 1 and 13, and N is the number of filters connected in parallel, note page 5, lines 12-14.

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Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to implement Kale et al.'s allpass filter building blocks as Bolle's polyphase filter, since Bolle suggest, on page 3, lines 1-3, that the use of all-pass filters as a polyphase filter would be well suited to this type of signal processing.

Regarding claim 2, Kale et al. further teach the claimed subject matter "coefficients" in Fig 8(b) elements c1 and c2.

Regarding claim 3, Kale et al. further teach the claimed subject matter "a first delay element...in case x" as follows. The first and second delay elements are shown in figure 8(a), where N is equal to 2. The first adder is shown receiving input of the first delay element. The first subtractor is shown receiving input of the second delay element. The first multiplier is shown receiving coefficient c_1 as input.

Regarding claim 4, Kale et al. further teach the claimed subject matter "a second adder...in case x" as follows. The third delay element is shown in figure 8(b), where N is equal to 4. The second adder is shown receiving input from second multiplier. The second subtractor is shown receiving input of the third delay element. The second multiplier is shown receiving coefficient c_2 as input.

Regarding claim 7, Bolle further teaches the claimed subject matter "Time multiplex" and "clock frequency" in figure 1, elements 4, 5 and 7.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Chalmers.

Regarding claim 8, Chalmers teach an IQ generator having the in-phase and quadrature signals obtained prior to polyphase filtering, note Fig. 5(a). Chalmers teach a multiplier 510 for multiplying a baseband signal prior to polyphase filtering, note Fig. 5(a), elements 508, 510 and 304.

Regarding claim 10, see claim 8.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claim 1, “delay elements with a delay 1” in lines 3-4; “wherein all delay elements with a delay 1 are replaced by delay elements with a delay N” in lines 4-5.

The stated limitations render the claim indefinite for failing to clearly point out the criteria required for delay elements to switch from a delay 1 to a delay N.

Additionally, claim 1 comprises the following characteristic: “a sampling rate $f_s' = f_s/N$, with f_s being the sampling rate of the input signal ($t(k)$)” in lines 6-7, however, claim 1 fails to attribute the preceding characteristic to a particular element in claim 1, i.e. the multiplier element.

Regarding claim 3, the term “ αa_k ” in line 10, is critical or essential to the practice of the invention, but not defined in the claim(s) and is not enabled by the disclosure. It is suggested the term “ αa_k ” be replaced with the term $-\alpha(k)-$.

Claims 2 and 4-7 is dependent on rejected claim 1, and are rejected under 35 U.S.C. 112, second paragraph.

Claim Objections

Claims 1-10 objected to because of the following informalities: Claims 1-10 need to be rewritten in such a way as to improve the claim language. For instance, claim 8 can be improved by rewriting the same as follows:

—8. An IQ-generator comprising:

a multiplier for multiplying an incoming sampled bandpass signal $s(k)$ by a signal

$A(k) = (-1)^{\text{floor}(k/N)}$ and outputting a signal $t(k)$; and

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a polyphase filter having N branch allpass filters (22) of order $x \cdot N$, having an input coupled to the output of said multiplier.—

Claims 1, 7, 8, 9 and 10 are objected to because the claims include variables not defined in the claim language.

Regarding claim 1, the variables “ x ”, “ N ”, “delay 1”, and “ k ” are critical or essential to the practice of the invention, but not defined in the claim.

Regarding claim 7, the variable “ a ” is critical or essential to the practice of the invention, but not defined in the claim.

Regarding claim 8, the variables “ k ”, “ $A(k)$ ”, “floor”, “ N ”, and “ x ” are critical or essential to the practice of the invention, but not defined in the claim.

Regarding claim 9, the variables “ f_o ”, “ f_s ”, and “ n ” are critical or essential to the practice of the invention, but not defined in the claim.

Regarding claim 10, see claim 8.

Appropriate correction is required.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Munoz whose telephone number is 703-305-4224. The examiner can normally be reached on Monday-Friday 8:30a.m-4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 703-308-7728. The fax phone number for the

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organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

William H. Harg

GM
July 6, 2004

Jean B. Corrielus
JEAN B. CORRIELUS
PRIMARY EXAMINER

7/22/04